What is claimed is:

1. A method for manufacturing a micro-actuator comprising the steps of:

forming a top structure by etching both sides of a first plate, the top structure comprising a stage, a plurality of comb-type electrodes formed on the bottom of the stage, a torsion bar positioned in the middle of both edges facing the stage, and a first frame layer of a predetermined height supporting the torsion bar;

forming a bottom structure by etching both sides of a second plate, the bottom structure comprising a base plate, a second frame layer formed on the base plate and having a predetermined height corresponding to the first frame layer height, and a plurality of fixed comb-type electrodes formed on the base plate; and

joining the top and bottom structure to form one body by forming a eutectic bonding layer between the first frame layer and the second frame layer, and superimposing the driving and fixed comb-type electrodes such that the extensions of the driving comb-type electrodes alternate with the extensions of the fixed comb-type electrodes

2. The method for manufacturing a micro-actuator of claim 1, wherein the step of forming the top structure further comprises the steps of:

forming a top separate region with a predetermined width and depth corresponding to the space between the stage and the first frame layer;

forming a top metal layer on a region corresponding to the first frame layer; and

forming the driving comb-type electrodes with a predetermined height on the bottom of the stage, while the separate region is penetrated by etching the bottom of the first plate with a predetermined pattern.

3. The method for manufacturing a micro-actuator of claim 1, wherein the step of forming the bottom structure further comprise the steps of:

forming signal lines with a predetermined pattern corresponding to the constituent elements;

forming a bottom separate region with a predetermined width and depth corresponding to the space between the second frame layer and the fixed comb-type electrodes;

joining the bottom of the second plate to the top of the base plate;

etching the region corresponding to the second frame layer to a predetermined depth on the top of the second plate;

forming a bottom metal layer on the etched part of the second plate;

forming a mask layer on the region corresponding to the second frame layer and the fixed comb-type electrodes on top of the second plate; and

forming the fixed comb-type electrodes with a predetermined height inside of the bottom separate region, while the bottom separate region is penetrated by etching to a predetermined depth the region that is not covered by the mask layer.

4. The method for manufacturing the micro-actuator of claim 2, wherein the step of forming the bottom structure further comprise the steps of:

forming signal lines with a predetermined pattern corresponding to the constituent elements;

forming a bottom separate region with a predetermined width and depth corresponding to the space between the second frame layer and the fixed comb-type electrodes;

joining the bottom of the second plate to the top of the base plate;

etching the region corresponding to the second frame layer to a predetermined depth on the top of the second plate;

forming a bottom metal layer on the etched part of the second plate;

forming a mask layer on the region corresponding to the second frame layer and the fixed comb-type electrode on top of the second plate; and

forming the fixed comb-type electrode with a predetermined height inside of the bottom separate region, while the bottom separate region is penetrated by etching to a predetermined depth the region that is not covered by the mask layer.

5. The method for manufacturing a micro-actuator of claim 2, wherein the step of forming the top metal layer further comprises the steps of

forming a metal seed layer on the bottom of the first plate; and

forming a metal eutectic bonding layer by a plating method on the seed layer.

6. The method for manufacturing a micro-actuator of claim 5, wherein

the step of joining the top and bottom structures into one body further comprises a step of performing the metal eutectic bonding at a predetermined temperature and pressure in order to join the first frame layer of the top structure to the second frame layer of the bottom structure, and more specifically to join the top metal layer of the first frame layer of the top structure to the bottom metal layer of the second frame layer of the bottom structure.

7. The method for manufacturing a micro-actuator of claim 3, wherein the step of forming a bottom metal layer on the second frame layer of the bottom structure further comprises a step of performing the metal eutectic bonding at a predetermined temperature and pressure in order to join the first frame layer of the top structure to the second frame layer of the bottom structure, and more specifically to join the top metal layer of the first frame layer of the top structure to the bottom metal layer of the second frame layer of the bottom structure.

8. The method for manufacturing a micro-actuator of claim 1, wherein the bottom of the second plate is joined to the top of the base plate by an anodic bonding process.

9. The method for manufacturing the micro-actuator of claim 7, wherein the bottom of the second plate is joined to the top of the base plate by an anodic bonding process.